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Operational Expression of Attitudes in a Self-Selecting Curriculum

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OPERATIONAL EXPRESSION OF ATTITUDES
IN A SELF-SELECTING CURRICULUM

A Thesis
Presented to
the Graduate Faculty
Central Washington State College

657271

In Partial Fulfillment
of the Requirements for the Degree
Master of Education

by
James Richard Carnes

May 1970

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TABLE OF CONTENTS

	Page
ACKNOWLEDGEMENT	i
LIST OF TABLES	ii
CHAPTER	
I. THE PROBLEM	1
Introduction and Background.	1
Statement of the Problem	2
Focus Questions.	2
Hypotheses	3
Basic Assumptions.	4
Limitations of the Study	4
Definitions of Terms	5
Purpose and Significance of the Study.	6
II. REVIEW OF THE LITERATURE	8
Attitudes and Their Operational Expression	8
Definitions.	9
Approach and Avoidance Tendencies.	10
Operational Expression of Attitudes.	12
Attitude Change.	13
Children's Curricular Preferences.	15
Self-selection Principle and Self-determining Curricular Programs.	18
III. METHODS, PROCEDURE, AND TREATMENT OF DATA.	19
Summer School Operations	19

Population	20
Sources of the Data,	20
Tabulation of Children's Curricular Choices	20
Student Attitude Inventories	21
Treatment of the Data.	22
IV. THE FINDINGS, CONCLUSIONS, IMPLICATIONS, AND RECOMMENDATIONS	27
Hypotheses	28
What Were the Students' Attitudes Concerning the Six Curricular Areas as Revealed Through a Survey Before Summer School?	29
Findings	29
Conclusions.	29
Implications and Recommendations	31
What Were the Students' Curricular Choices	32
Findings	32
Conclusions.	32
Implications and Recommendations	34
Were the Students' Curricular Choices Significantly Different Than Those Expected by Chance?	34
Findings	34
Conclusions.	35
Implications and Recommendations	37
Were the Students' Attitudes Reflected Operationally through Their Curricular Choices?	37
Findings	38
Conclusions	40
Implications and Recommendations	40
What Were the Students' Attitudes Concerning the Six Curricular Areas as Revealed through a Survey after Summer School?	41

Findings	41
Conclusions.	41
Implications and Recommendations.	43
What Were the Changes in the Students' Attitudes Concerning the Six Curricular Areas as Revealed By Comparing the Results of a Survey Given before Summer School with the Results of the Same Survey Given after Summer School?	43
Findings	43
Conclusions	47
Implications and Recommendations	48
What Were the Students' Curricular Choices during the First Half of the Summer School Session?	
What Were the Students' Curricular Choices during the Second Half of the Summer School Session?	
What Were the Changes in the Students' Curricular Choices as Revealed By Comparing the Choices Made during the First Half of the Summer School Session with Those Made during the Second Half of the Summer School Session?	48
Findings	49
Conclusions:	55
Implications and Recommendations	57
Were the Students' Changes in Attitudes Reflected Operationally through Changes in the Students' Curricular Choices?	57
Findings	58
Conclusions	58
Implications and Recommendations	60
V. SUMMARY	61
Hypotheses	63
H ₀ ¹ : The Students' Curricular Choices Were Not Significantly Different (at the 5% level) Than Those Expected By Chance	63

H ₀ ² ; There Was No Significant Correlation (at the 5% level) between the Rank Order of the Students' Attitudes Concerning the Six Curricular Areas as Revealed through a Survey Before Summer School, and the Rank Order of the Students' Curricular Choices.	64
H ₀ ³ ; There Were No Significant Differences (at the 5% level) in the Students' Attitudes Concerning the Six Curricular Areas as Revealed by Comparing the Results of a Survey Given Before Summer School with the Results of the Same Survey after Summer School.	64
H ₀ ⁴ ; There Were No Significant Differences (at the 5% level) in the Students' Curricular Choices as Revealed by Comparing the Curricular Choices Made during the First Half of Summer School Session with Those Made during the Second Half of Summer School	65
H ₀ ⁵ ; The Students' Changes in Attitudes Were Not Reflected Operationally through Changes in the Students' Curricular Choices	65
Conclusions	66
Recommendations.	67
BIBLIOGRAPHY.	71
APPENDIX A	73
APPENDIX B	75

LIST OF TABLES

Table	Page
1. Rank Order and Raw Scores of the Students' Attitudes Toward the Six Curricular Areas as Indicated by the Pre-Summer School Attitude Inventory.	30
2. Rank Order, Frequency of Choices, and the Percentages of the Students' Choices of the Six Curricular Areas for the Total Summer School Session	33
3. Computation of Chi Square for Each of the Six Curricular Areas and Overall.	36
4. Computation of the Spearman Rank Order Correlation Coefficient Comparing the Rank Orders of the Students' Attitudes Concerning the Six Curricular Areas with the Students' Curricular Choices (Rank Orders)	39
5. Rank Order and Raw Scores of the Students' Attitudes Toward the Six Curricular Areas as Indicated by the Post-Summer School Attitude Inventory	42
6. A Comparison of the Rank Orders of the Students' Attitudes toward the Six Curricular Areas as Indicated by the Pre-Summer School Attitude Inventory with the Rank Orders of Those on the Post-Summer School Attitude Inventory	45
7. The Number of Positive and Negative Changes, and the Overall Direction of Change in the Students' Attitudes toward the Six Curricular Areas as Indicated by Comparing The Pre and Post-Summer School Attitude Inventories	46
8. Rank Order, Frequency of Choices, and the Percentages of the Students' Choices of the Six Curricular Areas for the First Half of the Summer School Session	50
9. Rank Order, Frequency of Choices, and the Percentages of the Students' Choices of the Six Curricular Areas for the Second Half of the Summer School Session	51

Table	Page
10. A Comparison of the Rank Orders of the Students' Choices of the Six Curricular Areas for the First Half of the Summer School Session with the Rank Orders of Those for the Second Half of the Summer School Session	52
11. The Number of Positive and Negative Changes, and the Overall Direction of Change in the Students' Curricular Choices as Indicated by Comparing Their Choices Made During the First Half of the Summer School Session with those Made During the Second Half	53
12. A Comparison of the Overall Changes in the Students' Attitudes with the Overall Changes in the Students' Curricular Choices.	59

CHAPTER I

THE PROBLEM

Introduction and Background

Educators have long felt that attitudes are too nebulous to be taught or evaluated. Behaviors, on the other hand, can be observed and therefore facilitate both teaching and evaluation.

For years, educators have also felt that the development of positive attitudes was more important than mastery of a body of knowledge. But, how have they implemented this philosophy? Until recently, educators have been satisfied to concentrate on cognitive learnings; affective learnings have been incidental.

Experts in the affective domain have put this neglected area of learning into a new light. Krathwohl has now categorized levels of affective learning which can be demonstrated through behaviors (12:95-185). Mager supports Krathwohl's contribution by relating attitude to behaviors. In defining "attitude," he states:

Actually, "attitude" is a word used to refer to a general tendency of an individual to act in a certain way under certain conditions.

Our use of the word "attitude" is based on what someone says or what he does. It is based on visible behavior.

. . . When we make such an observation, we are making inference from visible behavior about an internal, invisible condition (13:14).

In a 1968-69 study by Gray, concerning self-directing curriculum, the teaching staff of the non-graded Hebeler Elementary School (HES) at Central Washington State College implemented a program in which they attempted to design a rich and stimulating curricular environment of

multi-level materials encompassing all elements of the school, and then they permitted the learner to satisfy his learning needs by choosing his curriculum from that environment (6:1-2). This self-directing curriculum allowed the learners to demonstrate behaviorally their preferences for certain subjects, but no study of the relationship between student attitudes and student choices was conducted.

Again during the 1969 summer school session, HES operated a similar program using a self-selecting curriculum. During this summer school session, data was collected which enabled an investigation of relationships between student attitudes and curricular choices. It was toward that investigation that this study was aimed.

Statement of the Problem

As a result of this study, the following questions, concerning the elementary students who attended the HES summer school session using a self-selecting curriculum, were answered, and the following hypotheses were tested.

Focus Questions. These questions were used as guidelines for directing the study.

1. What were the students' attitudes concerning the six curricular areas as revealed through a survey before summer school?
2. What were the students' curricular choices?
3. Were the students' curricular choices significantly different than those expected by chance?
4. Were the students' attitudes reflected operationally through their curricular choices?
5. What were the students' attitudes concerning the six

curricular areas, as revealed through a survey after summer school?

6. What were the changes in the students' attitudes concerning the six curricular areas, as revealed by comparing the results of a survey given before summer school with the results of the same survey given after summer school?

7. What were the students' curricular choices during the first half of the summer school session?

8. What were the students' curricular choices during the second half of the summer school session?

9. What were the changes in the students' curricular choices, as revealed by comparing the choices made during the first half of the summer school session with those made during the second half of the summer school session?

10. Were the students' changes in attitudes reflected operationally through changes in the students' curricular choices?

Hypotheses. The following null hypotheses were tested, and either accepted or rejected.

H_0^1 : The students' curricular choices were not significantly different (at the 5% level) than those expected by chance.

H_0^2 : There was no significant correlation (at the 5% level) between the rank order of the students' attitudes, concerning the six curricular areas, as revealed through a survey before summer school, and the rank order of the students' curricular choices.

H_0^3 : There were no significant differences (at the 5% level) in the students' attitudes, concerning the six curricular areas, as revealed by comparing the results of a survey given before summer school with the results of the same survey after summer school.

H_0^4 : There were no significant differences (at the 5% level) in the students' curricular choices, as revealed by comparing the curricular choices made during the first half of summer school with those made during the second half of summer school.

H_0^5 : The students' changes in attitudes were not reflected operationally through changes in the students' curricular choices.

Basic Assumptions. The following assumptions were made concerning this investigation:

1. Attitudes are operationally expressed through behaviors.
2. Students will "approach" curricular areas for which they have favorable attitudes.
3. Students will "avoid" curricular areas for which they have unfavorable attitudes.
4. Self-selecting curricular designs maximize the opportunity for students to "approach" or "avoid" curricular areas freely.

Limitations of the Study. The investigator acknowledged that certain limitations were evident in the design of this investigation.

Because this study took place during a summer school session, where the students may have reacted differently, generalizations should be limited when applying the results to the regular school year.

The sample was not a truly representative one due to the large proportion of children who came from families in which at least one parent has a college education.

Due to the short duration of the summer school session, the data is somewhat tentative.

Although the HES teachers agreed not to influence pupil choices in any way, other than providing stimulating experiences, the effect

of parent and peer influence could not be controlled. Attractive teacher personality is another limitation to be considered.

There were no controls placed on the wording used in the daily activity schedule, which may have provided additional attracting agents to affect the students' curricular choices.

Finally, the short duration of the summer school session may have affected the amount of student experimentation in choosing their own curriculum. It is also possible that attitudes may not have had enough time to become apparent operationally or to change.

Definitions of Terms. The following are definitions of terms used in this study:

Summer School Session - Summer school session was a non-graded education program for children between the ages of six to twelve years. The daily program began at 8:30 a.m. and terminated at 12:15 p.m. for twenty-one school days during the summer of 1969.

Curricular Organization Plan - Each day was divided into three periods. The children selected the curricular areas in which they preferred to spend their time. A child could attend a different one each period or stay in one curricular area all day.

Curricular Area - Activities were held in six separate locations within the school. Each activity occupied a different location in which learning materials were categorized and displayed. The activities were: (1) science, (2) language arts, (3) movement exploration, (4) mathematics, (5) art, and (6) manipulative activities.

Daily Activity Schedule - Every morning a schedule of the activities planned for each curricular area was posted and read in each home room so the children could select.

Period - The periods were from forty-five to fifty-five minutes in duration. During these blocks of time the children participated in the activity of their selection.

HES - When used in this study, these letters represent Hebeler Elementary School at Central Washington State College.

Operational Expression - The term "operational expression" refers to overt manifestations of attitudes. As used in this study, the term refers to behavioral tendencies related to attitudes.

Self-selecting Curriculum - A self-selecting curriculum is one in which a wide variety of learning activities are provided and the learner is allowed to select the activities of his choice with no restrictions. Each child is allowed to experiment with the available activities and "approach" or "avoid" them as he sees fit.

Purpose and Significance of the Study

In the light of the recent emphasis on affective learning, a need has developed for research of all types in the areas relating to attitudes. This study is being performed in response to that need.

Earl C. Kelly states:

. . .it has become abundantly clear, from research and from reason, that how a person feels is more important than what he knows. This seems true because how one feels controls behavior, while what one knows does not (11:455).

This investigation will hopefully contribute not only to the bank of knowledge concerning attitudes, but to information concerning the operational expression of attitudes as well.

Little is known about the patterns of selection that develop when children are given a choice of curricular areas. This study will contribute to that knowledge.

In answering the ten focus questions of this study, information will be revealed concerning children's attitudes toward curricular areas, how those attitudes are expressed behaviorally, and how attitude changes are reflected in behavior patterns.

In conjunction with Gray's 1969 study, An Investigation of Self-determining Curriculum, this study will provide additional research on which to make curriculum revisions, if desired, at HES and at other schools.

Lack of research on children's attitudes and how their behavior reflects those attitudes has prompted this investigation. It is hoped by the writer, that through this descriptive study some light will be shed on the operational expression of attitudes in a self-selecting curriculum.

CHAPTER II

REVIEW OF THE LITERATURE

A review of research dealing with the behavioral component of attitudes revealed little research data. Rosenberg attests to this fact in his discussion of attitude organization and change. He states:

Of the three major types of attitudinal response delineated in our diagrammatic scheme, (cognitive, affective, behavioral) "overt behavior" has perhaps received the least amount of systematic study and has been least often used as the main index of attitude. But a few studies, among which are those of Cartwright (1949), Katz and Kahn (1952), La Pierre (1934), and Schanck (1932), have been reported in which attitudes are characterized through some index of overt behavior (20:6).

Due to the lack of research data specifically applicable to this investigation, a review of literature of related areas was completed. The investigator reviewed the following related areas: (1) attitudes and their operational expression, and (2) children's curricular preferences.

Because this investigation is concerned with the operational expression of attitudes in a self-selecting curriculum, a brief review of the self-selection principle and self-determining curriculum is included in the review of literature.

Attitudes and Their Operational Expression

If attitudes are more important than mastery of knowledge, then the major part of school time should be spent in the pursuit of affective learning. This is not the case, however, as emphasized by Hedges:

However, when we examine what we actually do in school we discover that, in essence, we expect our students to master information.

As we continue to examine ourselves, we also see that when we test and evaluate students we confine ourselves almost exclusively to the cognitive domain, with mastery of facts, ideas, and skills. We avoid testing and evaluating the affective or emotional facets of our students' development.

We have reasons for failing to emphasize the measurement of attitudes, feelings, opinions, interests, appreciations, and values. They include (1) the difficulty of reliable and valid assesment, (2) our prevailing belief that our attitudes and values are our private business, (3) the difficulty of attributing the origin or growth of an attitude or appreciation to the efforts of a particular teacher, and (4) the paucity of research concerning evolvement of attitudes, appreciations, and feelings (8:1).

Definitions. Recently, definitions of "attitude" have connected behavioral tendencies with attitudes. The following are definitions of "attitude" taken from the most influential scholars in the study of the affective domain.

Krathwohl refers to one accepted definition of attitude:

Rhine (1958) surveyed the definitions of attitudes by outstanding psychologists and concluded that the common element is the essence of what is generally meant by a concept. He therefore defined an attitude as a concept with an evaluative component and proceeded to explain attitude formation in the cognitive terms usually reserved for concept formations. As he pointed out, this approach could make attitudes more amenable to laboratory scrutiny, one indication of why this approach to the affective domain is preferred (12:54).

Mager defines attitude in terms of behaviors:

Actually, "attitude" is a word used to refer to a general tendency of an individual to act in a certain way under certain conditions.

Our use of the word "attitude" is based on what someone says or what he does. It is based on visible behavior.

. . . .When we make such an observation, we are making inference from visible behavior about an internal, invisible condition (13:14).

Remmers also refers to "attitude" in terms of behaviors:

They (attitudes and behaviors) have been fused in the working concept of attitude which may be defined as an affectively toned idea or group of ideas predisposing the organism to action with reference to specific attitude objects. . . . for attitudes are theoretically a component of all behavior, overt or covert (18:3).

A similar definition is given by Rokeach;

An attitude is a relatively enduring organization of beliefs around an object or situation predisposing one to respond in some preferential manner (19:112).

Rosenberg, likewise, adds his support to the definitions of the other experts:

Attitudes are typically defined as "predispositions to respond in a particular way toward a specified class of objects." Being predispositions they are not directly observable or measureable. Instead they are inferred from the way we react to particular stimuli (20:1).

In relating behaviors to attitudes, Osgood refers to them as "tendencies of approach or avoidance" or as "favorable or unfavorable" (17:189). In defining attitudes, he states, "They are predispositions to respond" (17:189).

From these definitions of attitude, a thread of consistency emerges. It is evident that there is concensus among the experts that attitudes are "predispositions to respond or behave in a certain way."

Approach and Avoidance Tendencies. One of the most important aspects of education is the preparation of students for a useful and productive life. They must be able to use what they have learned and be able to learn more about those subjects they have studied. Students must leave learning experiences with a tendency to approach, rather than avoid, the subject of study.

Mager is probably the most widely read proponent of this theory:

Whatever else we do in the way of influencing the student, the least we must strive to achieve is to send him away with favorable rather than unfavorable feelings about the subject or activity we teach. This might well be our minimum, and universal goal in teaching.

(Of course, it isn't necessary for people to "like" a

subject or activity in order for them to come in contact with it, or use it, or do something about it. Look at all the things people do that they would rather not do. Add up the time you spend doing things not of your choice. But this is just the point. People try to spend as much time as possible doing those things they feel favorably about, and they avoid doing those things they feel unfavorably about. . . .except when circumstances prevent them from doing so. Those who dread the thought of mathematics, for example, will struggle with some calculations. . . .when they have to. Those who can't stand operatic music will sit through itwhen there is no choice (13:10).

In speaking of "favorable attitudes" we are predicting an "approach tendency" based on previous behavior. The opposite is true for "unfavorable attitudes." We then predict "avoidance tendencies." Mager defines "approach and avoidance" tendencies as follows:

(Approach) A positive condition or consequence is any pleasant event that exists during the time the student is in the presence of the subject matter. In the way that an aversive condition or consequence causes the student's world to become dimmer or causes him to think less highly of himself, a positive condition or consequence causes the student to think a little more highly of himself, causes his world to become a little brighter (13:58).

(Avoidance) An aversive condition or consequence is any event that causes physical or mental discomfort. It is any event that causes a person to think less highly of himself, that leads to a loss of self-respect or dignity, or that results in a strong anticipation of any of these. In general, any condition or consequence may be considered aversive if it causes a person to feel smaller or makes his world dimmer (13:49).

Krathwohl refers to positive feelings rather than approach tendencies, but implies the same results:

. . . .children are more likely to learn and remember material for which they have a positive feeling. Note for instance the prevalence of girls who dislike mathematics and so cannot learn it, as well as boys who dislike school in general and do poorly. Though these "likes" may be produced by role expectancies, it is the internalized preferences which produce the effect (12:57-58).

It seems sensible that the more a person likes an activity, the more he will participate in it. This is the basis for applying approach tendencies to education. Mager further explains the problems

resulting from avoidance tendencies:

More importantly, in instructional situations, people often verbalize a conviction that they cannot learn a particular subject matter and that they intend to have as little as possible to do with the subject in the future. Once such a behavior pattern develops, it is unlikely that it will be reversed.

To the extent the student avoids experiences with the subject, he will have fewer opportunities to change his avoidance tendency. In addition, if a student avoids experiences with a subject, it is improbable that he will use and maintain whatever skill he might have, and it is almost certain that he will learn little more about it as time goes by. Each subject a student avoids constitutes the loss of a tool or skill that might have eased his journey through a complex world (13:28-29).

In relating approach and avoidance tendencies to behavior patterns and attitudes, Mager summarizes:

Approach and avoidance responses are the raw materials, from which we make predictions about future behavior; they are the circumstantial evidence from which we make statements about tendencies. Though the quality of these statements depends on the quality of our evidence, the fact remains that there is tangible evidence from which reliable statements about attitudes can be made (13:30).

Again Krathwohl indirectly supports Mager's position concerning the role of affective behaviors in the process of education:

There are also some educators who believe that the primary problem is one of motivating students. If the students develop appropriate affective behaviors, then the learning of the subject matter (and cognitive objectives) will take place at a very rapid rate and at a high level of complexity (12:86).

Operational Expression of Attitudes. Attitudes are inferred from visible behavior. Through behaviors we can predict attitudes and vice-versa. According to Remmers, the ways individuals feel about various aspects of their world are probably more determinative of behavior than mere cognitive understanding of this world. He adds that when this is granted, the importance of attitude measurement becomes obvious (18:15). Remmers reports that attitudes are seldom

measured using overt behavior as an index:

While attitudes may be inferred from overt behaviors (effort expended for a cause, relative amounts of money spent for goods and services, and the like), most systematic psychological work has concerned itself with opinions expressed or endorsed as indices of attitudes (18:7).

The close relationship between affective learning and resultant behavior is discussed by Kelley:

Subject matter and feeling are so closely intertwined that they can no longer be considered a duality. Everyone who learns something has some feeling about it, and so, as in so many other areas, they are inseparable. No matter what we do, affective learning goes on anyway. When this affective learning is positive, the learner becomes constructive in his behavior (11:455).

Rokeach further develops the relationship between attitudes and behavior. It is his belief that preferential responses cannot occur in a vacuum; a social situation is required. Social behavior, he states, results from interaction of attitudes and situations (19:126-127).

Miller emphasizes that behaviors are not always an accurate index of attitude. He writes, "That people's actions are not always consistent with their utterances is reflected by such societal commonplaces as 'actions speak louder than words' and 'put up or shut up'." (14:235).

Osgood seems to summarize most of the information dealing with operational expression of attitudes in the following statement:

Most proponents of attitude measurement have agreed that attitude scores indicate only a disposition toward certain classes of behaviors, broadly defined, and that what overt response actually occurs in a real-life situation depends also upon the context provided by that situation (17:198).

Attitude Change. Little research data is available on attitude change because of measurement problems and tentativeness of attitudes. Earl E. Davis, however, has written a review and bibliography of selected

research dealing with attitude change (4:1-63).

Rokeach states that attitude changes can be expressed through changes in behavior; an attitude change is merely a change in the predisposition to respond. He adds that detecting changes in attitude through behavioral changes becomes complicated, however, because of the interaction of various attitudes (19:134-138).

In a recent article, Miller described what he called a verbal-behavior discrepancy. He offers Festinger's description of this discrepancy as related to attitude change:

Festinger attributes the discrepancy to the temporal brevity of any change resulting from a single exposure to a persuasive message. Briefly, his argument may be stated as follows: at any given moment in time, a person's attitude toward some concept or issue is probably a function of numerous prior learning experiences. If that individual is exposed to a persuasive message, the message may be sufficiently powerful to produce momentary attitude shift. If, however, this message represents an isolated incident and if further social reinforcement is not provided for the attitude change, the response should regress rapidly to its original level (14:237).

Krathwohl offers a very complex description of attitude change.

He describes Kelman's theory:

Kelman (1958) used the term in describing a theory of attitude change. He distinguished three different processes (compliance, identification, and internalization) by which an individual accepts influence or conforms. These three processes are defined as follows:

Compliance can be said to occur when an individual accepts influence because he hopes to achieve a favorable reaction from another person or group. He adopts the induced behavior not because he believes in its content but because he expects to gain specific rewards or approval and avoid specific punishments or disapproval by conforming. . . .

Identification can be said to occur when an individual accepts influence because he wants to establish or maintain a satisfying relationship to another person or group (e.g. teacher or other school authority). . . .The individual actually believes in the responses which he adopts through identification. . . . The satisfaction derived from identification is due to the act of conforming as such.

Internalization can be said to occur when an individual

accepts influence because the content of the induced behavior - the ideas and actions of which it is composed - is intrinsically rewarding. He adopts the induced behavior because it is congruent with his value system. . . . Behavior adopted in this fashion tends to be integrated with the individual's existing values. Thus, the satisfaction derived from internalization is due to the content of the new behavior (12:31-32).

If attitude change is to be facilitated, then more emphasis must be placed on children's attitudes in the schools. Such a system is presently in operation in England where students are given selections from which to make choices (22:15).

Children's Curricular Preferences

That children of elementary school age have curricular preferences and interests is undeniable. Whether children will demonstrate these preferences, given an opportunity to select their own curriculum, is one focus of this investigation. A review of the literature dealing with children's curricular preferences merely confirms the presence of preferences and interests.

As early as 1913, John Dewey was writing of his concern for interest and effort in education:

Interest in the emotional sense of the word, is the evidence of the way in which the self is engaged, occupied, taken up with, concerned in, absorbed by, carried away by, this objective subject-matter (5:90).

Dewey's activity schools based on interests were the fore-runners of self-selecting curricular programs. His philosophy about interests in education paved the way for activity-centered schools:

Interest is obtained not by thinking about it and consciously aiming at it, but by considering and aiming at the conditions that lie back of it, and compel it. If we discover a child's urgent needs and powers, and if we can supply an environment of materials, appliances, and resources - physical, social, and intellectual - to direct their adequate operation, we shall not have to think about interest. It will take care of itself (5:95).

In Gray's 1969 study, he reports that Jersild and Tasch (1949) studied children's interests in grades one through twelve. English usage, writing, reading, and library; numbers (arithmetic and mathematics); and spelling were preferred by primary children (grades one through three). For the intermediate children, preferences of English usage and numbers were reversed in order and declined in percentage. Spelling and social studies gained considerably. The sample surveyed 2,248 children from various size communities located in the South, New York City, and the Middle West (6:12).

In 1947 Chase studied a group of 13,483 fifth-graders in New England. He obtained the following results: reading, arithmetic, and art, respectively, were the favorites; language, penmanship, and health were the least popular (1:205).

Mosher, in 1952, surveyed 2,614 fourth through sixth-graders from rural, urban and mountain communities in New York. He revealed preferences for arithmetic, spelling, and art (15:35).

A 1959 study by Greenblatt of approximately 300 children from grades three through five revealed that art, arithmetic, and reading were preferred. Science and music held intermediate positions, and writing, language, and health were the least preferred (7:554-555).

Curry, in 1960-1961, surveyed the subject preferences of 43,979 fifth-graders representing all fifty states. He found that fifth-graders preferred art, health and P. E., language, and spelling, whereas music, reading, and social studies were less popular (2:23-27).

In 1962, Inskeep and Rowland surveyed the subject preferences in a study similar to Greenblatt's 1959 study. The results indicated little change. Arithmetic, art, and health and P. E. were most

preferred. The intermediate positions were held by reading, spelling, science, and music. Little interest was shown in social studies, handwriting, and language. In this study, 550 fourth, fifth, and sixth-graders were polled (9:225-228).

Fifth-grade students in the State of Washington were investigated by Davidson in 1965. Surveying 1,013 children, he found that art, health and P. E., and spelling were rated first, second, and third, respectively; social studies, science, and language were the least preferred subjects (3:30-32).

An activity preference survey was performed in 1969 in the English junior schools. Included in the survey were 438 children and five curricular areas:

The results suggest that girls hold more favourable attitudes than boys towards school activities, and that expressive activities are held in higher esteem than more reproductive skills. Differences are indicated between schools, showing that emphasis on particular activities in school tend to be associated with more favourable attitudes. It is further shown that older children hold less favourable attitudes towards school activities and a markedly low attitude toward literary activities in particular (21:72).

In summarizing the results of this review, the writer concurs with the results found in Gray's 1969 study (6:13). Consistent patterns of children's preferences seem to exist. Arithmetic, art, reading, and spelling appear to be generally preferred curricular areas by most elementary school children. On the other hand, language, social studies, science, health education, and penmanship seem to be less preferred.

The fact that children do have curricular preferences has implications for the development of curricular programs. Further research could be even more revealing and could result in some

significant developments in the education of children.

Self-selection Principle and Self-determining Curricular Programs

The self-selection principle and an investigation of self-determining curricular programs are the major emphases of the study by Gray (1969) which prompted this further investigation. In the study by Gray, the self-selection principle is defined by Olson as ". . . . a process by which the child is free to use natural opportunities in accordance with capacities, needs, and satisfactions that are self-defined" (6:7). The self-selection principle is reviewed in depth in this study (7:7-11) and is summarized as follows:

From the information reported, it is clear that some educators feel the self-selection principle may be advantageously applied to education. Others, as evidenced by the absence of the application of this principle in many classrooms, may feel that it may be unwise to relinquish important curricular decisions to children for one or more of the following reasons: (1) children are not capable of determining what is important for them, (2) they lack the knowledge and skill to make sound decisions, or (3) they are simply inexperienced at decision-making (6:11).

Likewise, Gray reviews self-determining curricular programs in depth in his 1969 study. Among the best known of these programs are those of A. S. Neill at Summerhill School, Maria Montessori's "prepared environment," and the emerging "free day" schools in England (6:14-24).

CHAPTER III

METHODS, PROCEDURE, AND TREATMENT OF DATA

Summer School Operations

During the summer of 1969 the teaching staff of HES operated a summer school session using a self-selecting curriculum. The general purpose of this program was to attempt to measure attitudes of children toward particular curricular areas as indicated by the patterns of their choices as compared with their stated preferences.

The summer school session began on June 19 and terminated on July 17. It was twenty-one days long; the first day was used for orientation, and the following twenty days for curricular activities. Each day was divided into three activity periods from forty-five to fifty-five minutes in duration. The children selected activities from the following six curricular choices: (1) language arts, (2) movement exploration, (3) science, (4) mathematics, (5) art, and (6) manipulative activities. They made their curricular selections at the beginning of each school day with the following restrictions: (1) each classroom maintained a level of enrollment at, or below, a pre-established maximum, and (2) children could opt for consecutive periods in any activity only after the options of those not previously in that activity were honored (if space remained before the maximum was reached children could opt for a consecutive period), and (3) once a curriculum selection was made, the children were not allowed to change activities during that period.

Population

The population investigated in this study consisted of 128 children ranging in age from six to twelve years. A large proportion of these children came from homes where at least one parent is a college graduate. Some children enrolled in the summer school session at HES were children of college students who were attending Central Washington State College during the summer quarter. Others were former HES students; and still others were public school students. Only those students who remained enrolled during the entire summer school session were included in the study. In order for the data to be analyzed, it was necessary for the students to complete both the pre and post-summer school attitude inventories. Only those students meeting this requirement were actually used in the study. Another criterion was that the students attend at least sixty-five per cent of the offered periods. As a result, only seventy-seven children met all the criteria and were included in the study.

Sources of the Data

The data used in this study were gathered from three major sources: (1) the hourly tabulation of the children's curricular choices from the six curricular areas, (2) an attitude survey questionnaire given to the students before the summer school session, and (3) an attitude survey questionnaire given to the students after the summer school session.

Tabulation of Children's Curricular Choices. In order to keep records on each student, the children were given numbered identification tags. After each of the three periods began, the identification tag

numbers of the children who had selected each curricular area were recorded. The information was then recorded on the master data chart which contained the curricular choices of each child during each period of the twenty-one day summer school session.

Student Attitude Inventories. The first day of the HES summer school session, June 19, was used for orientation to the program. It was at that time that an attitude survey questionnaire was administered to the children. The purpose of the inventory was to determine the attitudes of the children toward a variety of academic subjects representing the curricular areas being used in the HES summer school program.

The attitude survey questionnaire consisted of eight curricular categories to which the students were to respond on a like-dislike scale. The categories were: reading, language arts, social studies, arithmetic, science, art, dance and rhythms, and activities. Only the six categories representing the actual curricular offerings of the summer school session will be used in this study. The following is a list of the categories from the attitude inventory that were used in this study, along with their matched counterparts from the actual curricular offerings of the summer school session.

<u>Attitude Categories</u>		<u>Curricular Offerings</u>
Science	=	Science
Language Arts	=	Language Arts
Arithmetic	=	Mathematics
Activities	=	Manipulative Activities
Dance and Rhythms	=	Movement Exploration
Art	=	Art

The same attitude survey questionnaire was administered at the

end of the summer school session. The purpose of this inventory was to determine the children's attitudes after attending a summer school using a self-selecting curriculum and to compare the results with those of the first inventory.

The attitude inventories were five-point scales, with a score of one representing a very favorable attitude and a score of five representing a very unfavorable attitude. The children expressed their attitudes by marking a score of one, two, three, four, or five according to how they felt about a particular subject.

Both inventories were used to compare the children's curricular choices with their expressed attitudes.

Treatment of the Data

In analyzing the data gathered from the hourly tabulation of the children's curricular choices, and the student attitude inventories, the focus questions of this study were used as a guide.

All data was evaluated with respect to group patterns only. The pertinent data was collected and reported on the Master Data Sheets in Appendix A for use in answering the focus questions and testing the null hypotheses.

1. What were the students' attitudes concerning the six curricular areas, as revealed through a survey before summer school?

The total raw score from the pre-summer school attitude inventory for each of the six curricular areas was computed and reported. The six curricular areas were also placed in order according to rank on a like-dislike basis.

2. What were the students' curricular choices?

The total frequency of choices for each of the six curricular areas was computed and reported, and converted into percentages of the total number of choices made. The six curricular areas were also placed in order according to rank based on highest-to-lowest frequency of choices.

3. Were the students' curricular choices significantly different than those expected by chance?

In answering this question, the first null hypothesis was tested.

H_0^1 : The students' curricular choices were not significantly different (at the 5% level) than those expected by chance.

The Chi Square test of significance was applied to each of the six curricular areas. The null hypothesis was rejected at the 5% level. Significant differences were reported and the H_0 was either accepted or rejected.

4. Were the students' attitudes reflected operationally through their curricular choices?

In answering this question, the second null hypothesis was tested.

H_0^2 : There was no significant correlation (at the 5% level) between the rank order of the students' attitudes concerning the six curricular areas, as revealed through a survey before summer school, and the rank order of the students' curricular choices.

The rank order of the frequency of choice for the six curricular areas was compared with the rank order of the attitudes expressed on the pre-summer school attitude inventory. The Spearman Rank Order Correlation formula was applied and a correlation coefficient was

computed and reported. The null hypothesis was to be rejected at the 5% level of significance.

5. What were the students' attitudes concerning the six curricular areas, as revealed through a survey after summer school?

The total raw score from the post-summer school attitude inventory for each of the six curricular areas was computed and reported. The six curricular areas were also placed in order according to rank on a like-dislike basis.

6. What were the changes in the students' attitudes, concerning the six curricular areas, as revealed by comparing the results of a survey given before summer school, with the results of the same survey given after summer school?

In answering this question, the third null hypothesis was tested.

H_0^3 : There were no significant differences (at the 5% level) in the students' attitudes, concerning the six curricular areas, as revealed by comparing the results of a survey given before summer school with the results of the same survey given after summer school.

The total raw scores from both the pre and post-summer school attitude inventories for each of the six curricular areas was reported as were the rank orders. In addition, the total number of changes (either positive or negative) in each of the six curricular areas was tallied and reported. The Sign Test was applied to each of the six curricular areas and overall, and significant differences were reported. The null hypothesis was to be rejected at the 5% level.

7. What were the students' curricular choices during the first half of the summer school session?

8. What were the students' curricular choices during the second half of the summer school session:

9. What were the changes in the students' curricular choices, as revealed by comparing the choices made during the first half of the summer school session, with those made during the second half of summer school?

In answering these questions, the fourth null hypothesis was tested.

H_0^4 : There were no significant differences (at the 5% level) in the students' curricular choices, as revealed by comparing the curricular choices made during the first half of summer school, with those made during the second half of summer school.

The total raw scores and percentages of choices from both the first half and second half curricular choices for each of the six curricular areas were reported as were the rank orders. In addition, the total number of changes (either positive or negative) in each of the six curricular areas was tallied and reported. The Sign Test was applied to each of the six curricular areas and significant differences were reported. The null hypothesis was to be rejected at the 5% level.

10. Were the students' changes in attitudes reflected operationally through changes in the students' curricular choices?

In answering this question, the fifth null hypothesis was tested.

H_0^5 : The students' changes in attitudes were not reflected operationally through changes in the students' curricular choices.

The changes in attitudes and the changes in curricular choices were compared for each of the six curricular areas. Corresponding

changes in attitudes and choices were reported.

Any additional information indicative of total group patterns and concerning the operational expression of attitudes in a self-selecting curriculum was analyzed and reported.

CHAPTER IV
THE FINDINGS, CONCLUSIONS, IMPLICATIONS,
AND RECOMMENDATIONS

The goal of this study was to describe the operational expression of attitudes in a self-selecting curriculum. Information was revealed concerning children's attitudes toward specific curricular areas, how those attitudes are expressed behaviorally, and how attitude changes are reflected in behavior patterns.

An attempt was made to answer the following specific focus questions and hypotheses.

1. What were the students' attitudes concerning the six curricular areas as revealed through a survey before summer school?
2. What were the students' curricular choices?
3. Were the students' curricular choices significantly different than those expected by chance?
4. Were the students' attitudes reflected operationally through their curricular choices?
5. What were the students' attitudes concerning the six curricular areas as revealed through a survey after summer school?
6. What were the changes in the students' attitudes concerning the six curricular areas as revealed by comparing the results of a survey given before summer school with the results of the same survey given after summer school?
7. What were the students' curricular choices during the first half of the summer school session?

8. What were the students' curricular choices during the second half of the summer school session?

9. What were the changes in the students' curricular choices as revealed by comparing the choices made during the first half of the summer school session with those made during the second half of the summer school session?

10. Were the students' changes in attitudes reflected operationally through changes in the students' curricular choices?

Hypotheses. The following null hypotheses were tested and either accepted or rejected.

H_0^1 : The students' curricular choices were not significantly different (at the 5% level) than those expected by chance.

H_0^2 : There was no significant correlation (at the 5% level) between the rank order of the students' attitudes concerning the six curricular areas as revealed through a survey before summer school, and the rank order of the students' curricular choices.

H_0^3 : There were no significant differences (at the 5% level) in the students' attitudes concerning the six curricular areas as revealed by comparing the results of a survey given before summer school with the results of the same survey after summer school.

H_0^4 : There were no significant differences (at the 5% level) in the students' curricular choices as revealed by comparing the curricular choices made during the first half of summer school with those made during the second half of summer school.

H_0^5 : The students' changes in attitudes were not reflected operationally through changes in the students' curricular choices.

This chapter is organized around these focus questions and hypotheses. The findings, conclusions, implications, and recommendations are presented for each question and hypothesis.

What Were the Students' Attitudes Concerning the Six Curricular Areas as Revealed Through a Survey Before Summer School?

Findings. To give some indication of the students' attitudes toward the six curricular areas, a pre-summer school attitude inventory was administered. A sample of that attitude inventory appears in Appendix B. From the pre-summer school attitude inventory, the total raw score for each of the six curricular areas was computed, as were the rank orders of the curricular areas according to student preference. Table 1 reports this data.

The following are the results of the attitude inventory concerning the six curricular areas. They are in rank order from best-liked to least-liked, and their raw scores are reported: (1) art (123); (2) manipulative activities (159); (3) science (170); (4) mathematics (179); (5) language arts (220); and (6) movement exploration (221). On the like-dislike attitude scale used, a score of one represented a very favorable attitude, while a score of five represented a very unfavorable attitude. This accounts for the lower scores being the better liked curricular areas in the rank ordering.

Conclusions. Based on the findings of the pre-summer school attitude inventory, the following conclusions, concerning the students' attitudes toward the six curricular areas as they existed before summer school, were drawn.

1. Art was the most-liked curricular area.

Table 1

Rank Order and Raw Scores of the Students' Attitudes
Toward the Six Curricular Areas as Indicated
by the Pre-Summer School Attitude Inventory

Rank	Curricular Areas	Raw Score
1	Art	123
2	Manipulative Activities	159
3	Science	170
4	Mathematics	179
5	Language Arts	220
6	Movement Exploration	221

2. Manipulative activities was the second best-liked curricular area.

3. Science and mathematics were the third and fourth most-liked curricular areas respectively. These two areas were only separated by nine points in raw scores.

4. Language arts and movement exploration were the least-liked curricular areas. They were separated by only one point in raw scores.

Implications and Recommendations. These conclusions imply that children do, indeed, have curricular preferences. That general trends in curricular preference exist is illustrated in the review of literature. The conclusions of the pre-summer school attitude inventory generally agree with those trends, but as is to be expected, there is a certain amount of individuality of attitude which creates differences of preference. Movement exploration, for example, would usually be a highly preferred curricular area, but it was not in this survey.

Because children have curricular preferences, opportunity avails the teacher to stimulate children into in-depth study of these areas.

This writer recommends that further investigations into children's curricular preferences, as they reflect their attitudes, be undertaken in hopes of someday establishing a relevant curriculum for every child, in terms of what each child considers relevant to his own wants and needs.

What Were the Students' Curricular Choices?

Findings. An hourly tabulation of the students' curricular choices was made. From the hourly tabulation, the total frequency of choices for each of the six curricular areas was computed and converted into percentages of the total number of choices made. The six curricular areas were placed in order according to rank, based on highest-to-lowest frequency of choices. Table 2 reports this data.

The most frequently selected curricular area was manipulative activities. Students chose this area 25.2% of the time for a total of 1,086 choices out of a possible 4,311 choices. Next in rank order was language arts with 980 choices. This amounted to 22.7% of the total. Third in rank order was mathematics. Students chose this curricular area 687 times or 16.0% of the time. Art was next in rank order with 628 choices amounting to 14.6% of the total choices made. Fifth in rank order was movement exploration. Students chose it 473 times or 10.9% of the time. Science was the least selected curricular area with 457 choices amounting to 10.6% of the time.

Conclusions. Based on the hourly tabulation of the students' choices of the six curricular areas in a self-selecting curriculum, the following conclusions may be made in describing their choices.

1. The children's choices formed a generally balanced pattern, ranging from 25.2% to 10.6% of the total choices.
2. The rank order of the children's curricular choices was as follows: (1) manipulative activities; (2) language arts; (3) mathematics; (4) art; (5) movement exploration; and (6) science.

Table 2

Rank Order, Frequency of Choices, and the Percentages of
the Students' Choices of the Six Curricular Areas
for the Total Summer School Session

Rank	Curricular Areas	Frequency of Choices	*Percentage of Choices
1	Manipulative Activities	1086	25.2
2	Language Arts	980	22.7
3	Mathematics	687	16.0
4	Art	628	14.6
5	Movement Exploration	473	10.9
6	Science	457	10.6

*Approximate percentages

Implications and Recommendations. When children are given a choice of curricular areas from which they may select only one, they must make a decision based on how they feel about each area, perhaps who is teaching each area, who else is attending each curricular area, and their previous experiences with the curricular areas. Assuming that in this self-selecting curriculum, the main criterion for selection of curricular areas was the students' attitude about it, then the conclusions of the hourly tabulation have great impact. It would appear that the general nature of the students' choices was exploratory, or that they had a wide variety of preferences.

This writer cannot speculate about why students made the curricular choices they did. By describing the selection patterns that did occur, however, there can be seen a definite need for research concerning children's choices and their motivation.

Were the Students' Curricular Choices Significantly Different Than Those Expected by Chance?

In answering this question, the first null hypothesis was tested.

H_0^1 : The students' curricular choices were not significantly different (at the 5% level) than those expected by chance.

Findings. It is important in this study to determine whether or not the students' choices were significantly different than those made by chance. With six possible choices, there is the probability that by chance each area would have been selected (drawn from a hat for example) one-sixth of the time. One-sixth of the total choices made by the students (4,311) is 718.5, which became the expected

frequency of occurrence used in the Chi Square formula. The Chi Square test of significance was applied to each of the six curricular areas and overall, with the null hypothesis to be rejected at the 5% level. The results of the Chi Square test are reported in Table 3.

In order for the null hypothesis (H_0^1) to be accepted, Chi Square (X^2) had to be less than 3.84 as indicated by the X^2 distribution table. Chi Square scores larger than 3.84 were significantly different at the 5% level than expected by chance. Of the six curricular areas, only mathematics, with a X^2 of 2.8, was not significantly different than choices expected by chance. The following curricular areas were chosen at a frequency significantly different than expected by chance (X^2 is indicated in parenthesis): science (190.4); language arts (190.4); art (22.8); movement exploration (154.4); and manipulative activities (378.8).

In applying the X^2 test to the overall pattern of selections it was found that the overall frequency of choices among the six curricular areas, with a X^2 of 468.3, was significantly different than expected by chance.

Conclusions. Based on the results of the Chi Square test of significance applied to the frequency of choice data of the six curricular areas, the following conclusions were drawn.

1. The students' choices of these areas were significantly different at the 5% level than those expected by chance: science; language arts; art; movement exploration; and manipulative activities.

2. The students' choices of mathematics was not significantly different at the 5% level than those expected by chance.

Table 3

Computation of Chi Square for Each of the Six Curricular Areas and Overall

Curricular Areas	O	E	O-E	(O-E) ²	$\frac{(O-E)^2}{E}$	$\chi^2 = \sum \frac{(O-E)^2}{E}$
Science	457	718.5	-261.5	68382.25	95.2	190.4 *
Language Arts	980	718.5	261.5	68382.25	95.2	190.4 *
Mathematics	687	718.5	31.5	992.25	1.4	2.8
Art	628	718.5	90.5	8190.25	11.4	22.8 *
Movement Exploration	473	718.5	-245.5	55470.25	77.2	154.4 *
Manipulative Activities	<u>1086</u>	<u>718.5</u>	367.5	135056.25	<u>187.9</u>	375.8 *
	4311	4311			$\chi^2=468.3$	*

*Significant at the 5% level

3. The students' overall curricular choices were significantly different at the 5% level than those expected by chance, therefore the null hypothesis was rejected, and the following statement was substituted.

The students' curricular choices were significantly different, at the 5% level, than those expected by chance.

Implications and Recommendations. Just as children have definite curricular preferences, when given the chance to make curricular choices, those choices are significantly different than what should be expected by chance. From this information, the writer may imply that children, when making curricular choices, used some criteria other than chance. What those criteria were the writer cannot determine from the information available.

Having established that the students' curricular choices were significantly different at the 5% level than those expected by chance, the data may be assumed reliable and significant to the nature of this investigation.

This investigator recommends that further study be given to information regarding children's curricular choices and suggests that an attempt be made to identify the criteria on which those choices are based.

Were the Students' Attitudes Reflected Operationally through Their Curricular Choices?

In answering this question, the second null hypothesis was tested.

H_0^2 : There was no significant correlation (at the 5% level) between the rank order of the students' attitudes concerning the six

curricular areas as revealed through a survey before summer school, and the rank order of the students' curricular choices.

Findings. The rank order of the frequency of choices for the six curricular areas was compared with the rank order of the attitudes expressed on the pre-summer school attitude inventory. The Spearman Rank Order Correlation formula was applied to the data and a correlation coefficient was computed and reported.

The most important aspect of this study was the investigation of the relationship between the students' attitudes and their operational expression through curricular choices. This aspect of the study was investigated by establishing a correlation coefficient (ρ). In order for the null hypothesis to be accepted, ρ must be less than .886 as indicated by a ρ distribution table. Spearman Rank Order Correlation coefficients below .886 indicate that there is no significant correlation (at the 5% level) between the rank orders of students' attitudes and the rank orders of their choices. Table 4 contains this data.

The rank orders of the students' attitudes are reported in Table 1, while the rank orders of their curricular choices are reported in Table 2. Table 4 combines Tables 1 and 2, and reports the computation of the Spearman Rank Order Correlation formula ($\rho = 1 - \frac{6 \sum d^2}{N(N^2-1)}$).

With the ranks of the students' attitudes toward the six curricular areas designated by X, and the ranks of the students' curricular choices designated by Y, the following computations for $d=X-Y$ and d^2 were computed and reported: science ($3-6=-3=d$), $d^2=9$; language arts ($5-2=3=d$), $d^2=9$; mathematics ($4-3=1=d$), $d^2=1$; art

Table 4

Computation of the Spearman Rank Order Correlation Coefficient Comparing the Rank Orders of the Students' Attitudes Concerning the Six Curricular Areas with the Students' Curricular Choices (Rank Orders)

Curricular Areas	Ranks of Attitudes (X)	Ranks of Choices (Y)	d = X-Y	d ²
Science	3	6	-3	9
Language Arts	5	2	3	9
Mathematics	4	3	1	1
Art	1	4	-3	9
Movement Exploration	6	5	1	1
Manipulative Activities	2	1	1	1
				$\sum d^2 = 30$

$$p = 1 - \frac{6 \sum d^2}{N(N^2-1)} = 1 - \frac{6(30)}{6(36-1)} = 1 - \frac{180}{210} = .143 = p$$

(1-4=-3=d), $d^2=9$; movement exploration (6-5=1=d), $d^2=1$; manipulative activities (2-1=1=d), $d^2=1$. Therefore the sum of the d^2 s equalled 30 ($\sum d^2=30$). Since the number of ranks used was six, then $N=6$. Plugging these figures into the formula, a correlation coefficient (ρ) of .143 was obtained.

Conclusions. Based on the results of the Spearman test of significant correlation, the null hypothesis was accepted.

H_0^3 : There was no significant correlation (at the 5% level) between the rank order of the students' attitudes concerning the six curricular areas as revealed through a survey before summer school, and the rank order of the students' curricular choices.

Implications and Recommendations. Because of literature supporting the fact that children should approach those things they like and avoid those things they dislike, this writer assumed that the same would hold true for children's curricular choices, with respect to their attitudes toward the six curricular areas. At the same time a review of literature showed few studies that indicated a correlation between people's attitudes and people's behavior, therefore the null hypothesis was used. As the Spearman test for significant correlation illustrated, there was no significant correlation at the 5% level between the rank order of the students' attitudes concerning the six curricular areas, as revealed through a survey before summer school, and the rank order of the students' curricular choices. This writer will not attempt to hypothesize why there was no correlation. Further study in this area may reveal some insights into this apparent contradiction.

According to the pre-summer school attitude inventory, the students had curricular preferences, yet when given complete freedom to select their preferences, their choices generally did not match their stated preferences.

What Were the Students' Attitudes Concerning the Six Curricular Areas as Revealed through a Survey after Summer School?

Findings. Before determining any changes in attitude that occurred during the summer school session, a post-summer school attitude inventory was administered. The survey was identical to that administered before summer school. A sample of that survey appears in Appendix B. From the post-summer school attitude inventory, the total raw score for each of the six curricular areas was computed, as were the rank orders of the curricular areas, according to student preference. Table 5 reports this data.

The following are the results of the attitude inventory concerning the six curricular areas. They are in rank order, from best-liked to least-liked, and their raw scores are reported:

(1) manipulative activities (137); (2) art (156); (3) mathematics (159); (4) science (166); (5) language arts (189); and (6) movement exploration (196). On the like-dislike attitude scale used, a score of one represented a very favorable attitude while a score of five represented a very unfavorable attitude. This accounts for the lower scores being the better-liked curricular areas in the rank ordering.

Conclusions. Based on the findings of the post-summer school attitude inventory, the following conclusions concerning the students' attitudes toward the six curricular areas, as they existed after

Table 5

Rank Order and Raw Scores of the Students' Attitudes
Toward the Six Curricular Areas as Indicated by
the Post-Summer School Attitude Inventory

Rank	Curricular Areas	Raw Score
1	Manipulative Activities	137
2	Art	156
3	Mathematics	159
4	Science	166
5	Language Arts	189
6	Movement Exploration	196

summer school, were drawn.

1. Manipulative activities was the best-liked curricular area.
2. Art and mathematics were the second and third preferences.

These were separated by only 3 points in raw score.

3. Science was the fourth preference.

4. Language arts and movement exploration, separated by only 7 points in raw score, were the least-liked curricular areas.

Implications and Recommendations. Like the pre-summer school attitude inventory, this survey indicates that students do have curricular preferences. Although the results were slightly different than those reported previously, a general trend, established in the review of literature, was approximated.

Since preferences are not constant, further research may indicate means for adjusting curriculum to the students' current preferences. Further study along this line would be of value.

What Were the Changes in the Students' Attitudes Concerning the Six Curricular Areas as Revealed by Comparing the Results of a Survey Given before Summer School with the Results of the Same Survey Given after Summer School?

In answering this question the third null hypothesis was tested.

H_0^3 : There were no significant differences (at the 5% level) in the students' attitudes concerning the six curricular areas as revealed by comparing the results of a survey given before summer school with the results of the same survey after summer school.

Findings. In order to determine whether or not there were significant changes in attitude during summer school, the rank orders

from both the pre and post-summer school attitude inventories for each of the six curricular areas were compared and reported. This is reported in Table 6. In addition, the total number of changes (either positive or negative) and the overall direction of change is reported in Table 7. The Sign Test was applied to each of the six curricular areas, and overall, and significant differences at the 5% level were reported.

Following are the six curricular areas and a comparison of their rank orders of preference for the pre and post-summer school attitude inventories: science dropped from 3 to 4; language arts remained at 5; mathematics increased from 4 to 3; art dropped from 1 to 2; movement exploration remained at 6; and manipulative activities gained from 2 to 1.

Positive and negative changes in attitude were determined by counting the number of decreases and increases, respectively, in the raw scores of each student as indicated by comparing their pre and post-summer school attitude inventories. Where no change occurred, these students were dropped from the total N. From the resulting data an overall direction of change was determined.

Following are the six curricular areas with the number of positive and negative changes and the overall direction of change: science = 24 (+), 17(-), overall change (+); language arts = 32(+), 15(-), overall change (+); mathematics = 31(+), 17(-), overall change (+); art = 11(+), 30(-), overall change (-); movement exploration = 29(+), 15(-), overall change (+); manipulative activities = 29(+), 17(-), overall change (+).

By using the smallest number of changes (r) and the total

Table 6

A Comparison of the Rank Orders of the Students' Attitudes
toward the Six Curricular Areas as Indicated by the
Pre-Summer School Attitude Inventory with the
Rank Orders of Those on the Post-Summer
School Attitude Inventory

Curricular Areas	Pre-Inventory Rank Orders	Post-Inventory Rank Orders
Science	3	4
Language Arts	5	5
Mathematics	4	3
Art	1	2
Movement Exploration	6	6
Manipulative Activities	2	1

Table 7

The Number of Positive and Negative Changes, and the
Overall Direction of Change in the Students'
Attitudes toward the Six Curricular
Areas as Indicated by Comparing
The Pre and Post-Summer School
Attitude Inventories

Curricular Areas	+ Change	- Change	Overall Change
Science	24	17	+
Language Arts	32	15	+ *
Mathematics	31	17	+
Art	11	30	- *
Movement Exploration	29	15	+ *
Manipulative Activities	29	17	+

*Significant at the 5% level

number of positive or negative changes (N) for each of the six curricular areas, a table indicating the critical values of r for the Sign Test was referred to and significance at the 5% level was determined.

Following are the curricular areas with significant changes (at the 5% level) in student attitudes when the pre and post-summer school attitude inventories were compared: language arts (+); art (-); and movement exploration (+).

Conclusions. Based on these findings, the following conclusions were drawn.

1. Students' attitudes concerning science, language arts, mathematics, movement exploration, and manipulative activities changed positively (+).

2. Students' attitudes toward art changed negatively (-).

3. The students' attitudes concerning language arts (+), art (-), and movement exploration (+) changed significantly at the 5% level, therefore, for these curricular areas, the null hypothesis was rejected and a new statement substituted.

There were significant differences (at the 5% level) in the students' attitudes concerning the curricular areas of language arts, art, and movement exploration, as revealed by comparing the results of a survey given before summer school with the results of the same survey given after summer school.

4. The students' attitudes concerning science, mathematics, and manipulative activities did not change significantly at the 5% level, therefore for these curricular areas, the null hypothesis was accepted, as altered.

H_0^3 : There were no significant differences (at the 5% level) in the students' attitudes concerning the curricular areas of science, mathematics, and manipulative activities, as revealed by comparing the results of a survey given before summer school with the results of the same survey after summer school.

Implications and Recommendations. These findings indicate that during a four week summer school session, students' attitudes concerning curricular areas can change; some significantly. This writer does not hypothesize why these changes took place. That should be dealt with in a further study concerning attitude changes. It should be noted that although most attitude changes were positive in direction, there was one negative change. In general, it may be assumed that the students' attitudes toward this summer school session using a self-selecting curriculum were favorable.

What Were the Students' Curricular Choices during the First Half of the Summer School Session?

What Were the Students' Curricular Choices during the Second Half of the Summer School Session?

What Were the Changes in the Students' Curricular Choices as Revealed by Comparing the Choices Made during the First Half of the Summer School Session with Those Made during the Second Half of the Summer School Session?

In answering these questions, the fourth null hypothesis was tested.

H_0^4 : There were no significant differences (at the 5% level) in the students' curricular choices as revealed by comparing the curricular choices made during the first half of summer school session with those made during the second half of summer school.

Findings. In order to determine any patterns of change in the students' curricular choices, the summer school session was divided into two halves, each ten days long. This was done arbitrarily to be consistent with the pre - post design of the attitude survey. There was no attempt made to determine exactly when changes in curricular choice patterns actually occurred.

The total raw scores and percentages of choices from both the first half and second half students' curricular choices for each of the six curricular areas was reported, as were the rank orders. Table 8 reports the first half data, while Table 9 reports the second half data. The rank orders of the curricular choices, for both the first and second half of summer school, for each of the six curricular areas were compared and reported in Table 10. In addition, the total number (N) of changes (either positive or negative), and the overall direction of change in each of the six curricular areas were tallied and reported in Table 11.

The Sign Test was applied to each of the six curricular areas and significant differences at the 5% level were reported in Table 11.

During the first half of summer school, the most frequently selected curricular area was language arts. Students chose this area 24.0% of the time for a total of 522 choices out of a possible 2,175 choices. Next in rank order was manipulative activities with 516 choices. This amounted to 23.7% of the total. Third in rank order was mathematics. Students chose this curricular area 354 times or 16.3% of the time. Art was next in rank order with 348 choices, amounting to 16.0% of the total choices made. Fifth in rank order was science. Students chose it 236 times or 10.9% of the time.

Table 8

Rank Order, Frequency of Choices, and the Percentages of
the Students' Choices of the Six Curricular Areas
for the First Half of the Summer School Session

Rank	Curricular Areas	Frequency of Choices	*Percentage of Choices
1	Language Arts	522	24.0
2	Manipulative Activities	516	23.7
3	Mathematics	354	16.3
4	Art	348	16.0
5	Science	236	10.9
6	Movement Exploration	199	9.1

*Approximate percentages

Table 9

Rank Order, Frequency of Choices, and the Percentages of
the Students' Choices of the Six Curricular Areas
for the Second Half of the Summer School Session

Rank	Curricular Areas	Frequency of Choices	*Percentage of Choices
1	Manipulative Activities	570	26.7
2	Language Arts	458	21.4
3	Mathematics	333	15.6
4	Art	280	13.1
5	Movement Exploration	274	12.8
6	Science	221	10.4

*Approximate percentages

Table 10

A Comparison of the Rank Orders of the Students' Choices
of the Six Curricular Areas for the First Half of
the Summer School Session with the Rank
Orders of Those for the Second Half
of the Summer School Session

Curricular Areas	First Half Rank Orders	Second Half Rank Orders
Science	5	6
Language Arts	1	2
Mathematics	3	3
Art	4	4
Movement Exploration	6	5
Manipulative Activities	2	1

Table 11

The Number of Positive and Negative Changes, and the
Overall Direction of Change in the Students'
Curricular Choices as Indicated by
Comparing Their Choices Made
During the First Half of the
Summer School Session
with those Made During
the Second Half

Curricular Areas	+ Changes	- Changes	Overall Change
Science	31	32	-
Language Arts	32	40	-
Mathematics	25	38	-
Art	28	44	-
Movement Exploration	40	20	+ *
Manipulative Activities	37	35	+

*Significant at the 5% level

Movement exploration was the least selected curricular area, with 199 choices amounting to 9.1% of the time.

During the second half of the summer school session, the most frequently selected curricular area was manipulative activities. Students chose this area 26.7% of the time for a total of 570 choices out of a possible 2,136 choices. Next in rank order was language arts with 458 choices. This amounted to 21.4% of the total. Third in rank order was mathematics. Students chose this curricular area 333 times or 15.6% of the time. Art was next in rank order with 280 choices amounting to 13.1% of the total choices made. Fifth in rank order was movement exploration. Students chose it 274 times or 12.8% of the time. Science was the least selected curricular area with 221 choices amounting to 10.4% of the time.

Following are the six curricular areas and a comparison of their rank orders of the students' curricular choices for the first and second half of summer school: science dropped from 5 to 6; language arts dropped from 1 to 2; mathematics remained at 3; art remained at 4; movement exploration increased from 6 to 5; and manipulative activities gained from 2 to 1.

Positive and negative changes in students' curricular choices were determined by computing the percentages of each students' total choices that were made in each curricular area for both the first half and second half of summer school (see the Master Data Sheet in Appendix A). The number of increases and decreases in these percentages were then computed by comparing the first half percentages with those of the second half. Where no change occurred, those were dropped from the total N. From the resulting data an overall direction of

change was determined.

Following are the six curricular areas with the number of positive and negative changes and the overall direction of change: science = 31(+), 32(-), overall change(-); language arts = 32(+), 40(-), overall change(-); mathematics = 25(+), 38(-), overall change(-); art = 28(+), 44(-), overall change(-); movement exploration = 40(+), 20(-), overall change(+); manipulative activities = 37(+), 35(-), overall change(+).

By using the smallest number of changes (r) and the total number of positive or negative changes (N) for each of the six curricular areas, a table indicating the critical values of r for the Sign Test was referred to and significance at the 5% level was determined.

Movement exploration (+) was the only curricular area with significant changes (at the 5% level) in the students' curricular choices when the first half and second half choices were compared and the Sign Test was applied.

Conclusions. Based on the hourly tabulation of the students' choices of the six curricular areas in a self-selecting curriculum, the following conclusions may be made in describing their choices for the first half of summer school session.

1. The children's choices formed a generally balanced pattern, ranging from 24.0% to 9.1% of the total choices.

2. The rank order of the children's curricular choices for the first half of summer school, is as follows: (1) language arts; (2) manipulative activities; (3) mathematics; (4) art; (5) science; and (6) movement exploration.

Based on the hourly tabulation of the students' choices of the six curricular areas in a self-selecting curriculum, the following conclusions may be made in describing their choices for the second half of summer school session.

1. The children's choices formed a generally balanced pattern, ranging from 26.7% to 10.4% of the total choices.

2. The rank order of the children's curricular choices for the second half of summer school is as follows: (1) manipulative activities; (2) language arts; (3) mathematics; (4) art; (5) movement exploration; and (6) science.

Based on the comparison of the students' curricular choices for the first half of summer school with those for the second half, the following conclusions were drawn.

1. Students' curricular choices of science, language arts, mathematics, and art changed negatively(-).

2. Students' curricular choices of movement exploration, and manipulative activities changed positively(+).

3. The students' curricular choices of movement exploration changed significantly at the 5% level, therefore, for this curricular area, the null hypothesis was rejected and a new statement was substituted.

There were significant differences (at the 5% level) in the students' curricular choices of the curricular area of movement exploration, as revealed by comparing the students' choices made during the first half of summer school, with those made during the second half of summer school.

4. The students' curricular choices of science, language arts,

mathematics, art, and manipulative activities did not change significantly at the 5% level, therefore, for these curricular areas, the null hypothesis was accepted, as altered.

H_0^4 : There were no significant differences (at the 5% level) in the students' curricular choices of science, language arts, mathematics, art, and manipulative activities as revealed by comparing the curricular choices made during the first half of summer school session with those made during the second half of summer school.

Implications and Recommendations. Given the choice of curricular areas from which to select over a period of twenty days, the students based their choices on criteria known only to themselves. During that period of twenty days, they had time to explore, therefore their choices during the first half differed from those made during the second half. The breakdown of the students' curricular choices into these two equal periods enabled this writer to determine the direction of change in the students' choices. Further study might yield interesting results concerning the reasons for these changes.

The findings indicate that during a four week summer school session, students' curricular choices change, some significantly. This writer cannot, however, hypothesize why these changes took place.

Were the Students' Changes in Attitudes Reflected Operationally through Changes in the Students' Curricular Choices?

In answering this question, the fifth null hypothesis was tested.

H_0^5 : The students' changes in attitudes were not reflected

operationally through changes in the students' curricular choices.

Findings. The changes in attitude and the changes in curricular choices were compared for each of the six curricular areas. Corresponding attitudes and choices are reported in Table 12.

Following are the six curricular areas and their overall changes in attitudes compared with their overall changes in choices: science = attitudes(+), choices(-); language arts = attitudes(+), choices(-); mathematics = attitudes(+), choices(-); art = attitudes(-), choices(-); movement exploration = attitudes(+), choices(+); manipulative activities = attitudes(+), choices(+).

The only significant change in attitudes corresponding with a significant change in choices occurred in the curricular area of movement exploration.

Conclusions. Based on the findings, the following conclusions may be drawn.

1. Curricular areas whose changes in attitudes corresponded with their changes in choices were art (-,-), movement exploration (+,+), and manipulative activities (+,+).
2. Curricular areas whose changes in attitudes did not correspond with their changes in choices were science (+,-), language arts (+,-), and mathematics (+,-).
3. Movement exploration was the only curricular area with a significant change in attitude corresponding with a significant change in choices.
4. For the curricular areas of art, movement exploration, and manipulative activities, the changes in attitudes corresponded with

Table 12

A Comparison of the Overall Changes in the Students'
Attitudes with the Overall Changes in the
Students' Curricular Choices

Curricular Areas	Overall Changes in Attitudes	Overall Changes in Choices
Science	+	-
Language Arts	+ *	-
Mathematics	+	-
Art	- *	-
Movement Exploration	+ *	+ *
Manipulative Activities	+	+

*Significant at the 5% level

the changes in choices, therefore for these curricular areas the null hypothesis was rejected and a new statement substituted.

The students' changes in attitudes concerning art, movement exploration, and manipulative activities were reflected operationally through changes in the students' curricular choices of those curricular areas.

5. For the curricular areas of science, language arts, and mathematics, the null hypothesis was accepted, as altered.

H_0^5 : The students' changes in attitudes concerning science, language arts, and mathematics were not reflected operationally through changes in the students' curricular choices of that curricular area.

Implications and Recommendations. If it is assumed that attitudes are expressed through behaviors, specifically curricular choices, then, when changes in attitude occur, corresponding changes in curricular choices should occur. This holds true in art, movement exploration, and manipulative activities, but not in science, language arts, and mathematics for this investigation.

Further investigation of the relationship between attitudes and their operational expression through behaviors is recommended by this writer.

CHAPTER V

SUMMARY

It has always seemed to educators that there is some relationship between attitudes and behaviors. Just what that relationship is, was the emphasis of this study. The investigator researched the seemingly relevant topic of Operational Expression of Attitudes in a Self-selecting Curriculum. An attempt was made to describe how children's behavior reflects their attitudes.

During the 1969 summer school session at Hebeler Elementary School, on the Central Washington State College campus, data was gathered which enabled an investigation of relationships between students' attitudes toward, and choices of the six curricular areas being offered during summer school, and a pre-summer school attitude inventory was administered. This survey was compared with both the students' curricular choices during summer school and their attitudes, as indicated on the identical survey administered after summer school. During the twenty-one day summer school session, operating a self-selecting curriculum in which students were given almost complete freedom to select those curricular areas which they would attend, a tabulation was made of every choice the children made. The six curricular areas from which the students chose were science, language arts, mathematics, art, movement exploration and manipulative activities.

Relevant data from 77 students between the ages of six and twelve years old was used in the investigation. All data was then evaluated with respect to group patterns only.

The following ten focus questions were used as guidelines for conducting the investigation, and testing of the subsequently listed five null hypotheses.

1. What were the students' attitudes concerning the six curricular areas as revealed through a survey before summer school?
2. What were the students' curricular choices?
3. Were the students' curricular choices significantly different than those expected by chance?
4. Were the students' attitudes reflected operationally through their curricular choices?
5. What were the students' attitudes concerning the six curricular areas, as revealed through a survey after summer school?
6. What were the changes in the students' attitudes concerning the six curricular areas, as revealed by comparing the results of a survey given before summer school with the results of the same survey given after summer school?
7. What were the students' curricular choices during the first half of the summer school session?
8. What were the students' curricular choices during the second half of the summer school session?
9. What were the changes in the students' curricular choices, as revealed by comparing the choices made during the first half of the summer school session with those made during the second half of the summer school session?
10. Were the students' changes in attitudes reflected operationally through changes in the students' curricular choices?

Hypotheses. The following null hypotheses were tested, and either accepted or rejected.

H_0^1 : The students' curricular choices were not significantly different (at the 5% level) than those expected by chance.

H_0^2 : There was no significant correlation (at the 5% level) between the rank order of the students' attitudes concerning the six curricular areas, as revealed through a survey before summer school, and the rank order of the students' curricular choices.

H_0^3 : There were no significant differences (at the 5% level) in the students' attitudes, concerning the six curricular areas, as revealed by comparing the results of a survey given before summer school with the results of the same survey after summer school.

H_0^4 : There were no significant differences (at the 5% level) in the students' curricular choices, as revealed by comparing the curricular choices made during the first half of summer school with those made during the second half of summer school.

H_0^5 : The students' changes in attitudes were not reflected operationally through changes in the students' curricular choices.

By applying the focus questions to the gathered data, the investigator was able to describe the relationships between students' attitudes and their curricular choices. The main emphasis of the study, however, was the testing of five null hypotheses. Following are the investigator's conclusions concerning these null hypotheses.

H_0^1 : The Students' Curricular Choices Were Not Significantly Different (at the 5% level) Than Those Expected by Chance

After applying the Chi Square test of significance to each of the six curricular areas, and overall, this investigator concluded

that the students' overall curricular choices were significantly different at the 5% level than those expected by chance, therefore the null hypothesis was rejected and the following statement was substituted.

The student's curricular choices were significantly different (at the 5% level) than those expected by chance.

H₀²: There Was No Significant Correlation (at the 5% level) between the Rank Order of the Students' Attitudes Concerning the Six Curricular Areas as Revealed through a Survey before Summer School, and the Rank Order of the Students' Curricular Choices.

Based on the results of the Spearman test of significant correlation, the null hypothesis (H₀²) was accepted.

H₀³: There Were No Significant Differences (at the 5% level) in the Students' Attitudes Concerning the Six Curricular Areas as Revealed by Comparing the Results of a Survey Given before Summer School with the Results of the Same Survey after Summer School

After applying the Sign Test of Significant differences to the related data, the following conclusions were drawn. The students' attitudes concerning language arts (+), art (-), and movement exploration (+) changed significantly at the 5% level, therefore, for these curricular areas, the null hypothesis was rejected and a new statement substituted.

There were significant differences (at the 5% level) in the students' attitudes concerning the curricular areas of language arts, art, and movement exploration, as revealed by comparing the results of a survey given before summer school with the results of the same survey given after summer school.

The students' attitudes toward science, mathematics, and manipulative activities, did not change significantly at the 5% level, therefore, for these curricular areas, the null hypothesis (H₀³) was

accepted.

H₀⁴: There Were No Significant Differences (at the 5% level) in the Students' Curricular Choices as Revealed by Comparing the Curricular Choices Made during the First Half of Summer School Session with Those Made during the Second Half of Summer School

Again, after applying the Sign Test of significant differences to the related data, the investigator concluded that the students' curricular choices of movement exploration changed significantly at the 5% level, therefore, for this curricular area, the null hypothesis was rejected and a new statement was substituted.

There were significant differences (at the 5% level) in the students' curricular choices of the curricular area of movement exploration, as revealed by comparing the students' choices made during the first half of summer school with those made during the second half of summer school.

On the other hand, the students' curricular choices of science, language arts, mathematics, art, and manipulative activities did not change significantly at the 5% level, therefore, for these curricular areas, the null hypothesis (H₀⁴) was accepted.

H₀⁵: The Students' Changes in Attitudes Were Not Reflected Operationally through Changes in the Students' Curricular Choices.

By comparing the students' changes in attitudes with their changes in curricular choices for each of the six areas, the following conclusions were drawn. For the curricular areas of art, movement exploration, and manipulative activities, the changes in attitudes corresponded with the changes in choices, therefore, for these curricular areas the null hypothesis was rejected and a new statement substituted.

The students' changes in attitudes concerning art, movement exploration, and manipulative activities were reflected operationally through changes in the students' curricular choices of those curricular areas.

For the curricular areas of science, language arts, and mathematics, the null hypothesis (H_0^5) was accepted.

Conclusions

Although there was no significant correlation between the students' attitudes and their curricular choices, this writer concludes that there do, indeed, exist relationships between children's attitudes concerning curricular areas and their actual curricular choices. Uncontrollable variables and the mutable state of attitudes certainly are influential when the decision of making a curricular choice confronts a child. Students did, as shown in this study, establish preferences of curricular areas. Likewise, they made curricular choices that differed significantly from those expected by chance.

It becomes clear that students' attitudes are subject to change, just as are their curricular choices. Perhaps most important is the fact that certain changes in attitudes were reflected operationally through changes in student behavior.

This writer, after conducting this investigation of the operational expression of attitudes in a self-selecting curriculum, feels that this study will contribute to the body of knowledge concerning attitudes and how behaviors reflect them. The knowledge of children's patterns of selection and their curricular preferences is increased through this study. Furthermore, this investigation demonstrates that attitude changes can be reflected in behavior patterns.

Recommendations

If educators are to implement the belief that the development of positive attitudes is more important than the mastery of a body of knowledge, then research must more accurately describe the relationships between students' attitudes and students' behaviors. Only after educators become more informed and more secure about the affective domain, will affective learning become of primary concern rather than an incidental in the process of education. Further investigation concerning the identification of attitudes through student behaviors, and even affective learning through changes in student behaviors, is recommended as a step toward the achievement of this goal.

This study hopefully contributed to the bank of knowledge concerning children's attitudes, but further research is needed concerning children's attitude formation and change.

Little is known about the patterns of selection that develop when children are given a choice of curricular areas. This study added to the general knowledge of children's curricular choice patterns, but specific research concerning this area is needed, with regard to various ages, sex, age and sex, and individual patterns.

As indicated in Chapter I, this study attempted to provide additional research evidence on which to make curricular revisions, if desired, at HES and at other schools. In conjunction with Gray's 1969 study, An Investigation of Self-determining Curriculum, this study, Operational Expression of Attitudes in a Self-selecting Curriculum, provides valuable research evidence for making such curricular revision.

This investigator recommends that, because self-selecting

curricular designs maximize the opportunity for students to "approach" or "avoid" curricular areas freely, schools should adopt option-based curricular designs in an effort to develop positive attitudes toward learning. Curricular designs of this sort not only provide the learner with curricula that are relevant to him, and a positive attitude toward learning; but it involves the learner in decision making concerning what he will learn and at what pace he will proceed.

A self-selecting curricular design is recommended in doing further research concerning children's curricular preferences and choices. It would benefit further investigations, in this area, if external variables such as peer, parent, and teacher influence were carefully controlled during the investigation.

This study was made during a summer school session using a self-selecting curriculum, and because of that, much of the data is rather tentative. This writer recommends that a similar investigation be undertaken during the regular school year, preferably in a public school with a more heterogeneous population.

A further recommendation is that additional research concerning the operational expression of attitudes be experimental in nature. By using control groups in further research, important comparisons may be made between groups that have not been made previously.

It is recommended that periodic inventories of students' attitudes concerning curricular areas be taken, regardless of the school's curricular design. This would provide feedback concerning the children's interests, the relevance of the material, and the performance of the teachers. Likewise, regardless of the school's curricular design, records could be kept, concerning the students'

behaviors in specific curricular areas. Together, these two instruments could provide interesting and informative data concerning children's attitudes and how they are reflected.

As a final recommendation, this investigator proposes a curricular design, based partly on data from this investigation, that is a compromise between those educators who would allow the curriculum to be completely self-determining, and those who are not yet certain of the decision making capabilities of children and therefore prefer a structured, traditional approach.

In such a curricular design, a portion of the school day or week could be structured, with students required to participate in activities which the teacher feels are relevant and necessary for the students. Another portion of the school day or week could be a self-selecting curricular design, utilizing the abilities and interests of the teachers in a team function. A variety of options would be available from which the students could select their own relevant curricula. This form of curriculum could be used as an intermediate step, preceding a curriculum based completely on options, or as a compromise curriculum for educators that are skeptical of the self-selecting curriculum principle.

This type of curricular design would be advantageous, as well, to further investigation of children's attitudes concerning curricular areas, their curricular choices, operational expression of attitudes and attitude changes, and would provide a continuous laboratory setting for the development of curricula which are relevant to both the students and the teachers.

This study is only a beginning step in the investigation of

children's attitudes and how they are reflected, specifically in a self-selecting curriculum. Recommendations have been made for studies of a larger scope, as well as for studies of a more specific nature. If this study is to be worthwhile, additional related research must be carried out, and eventually some form of implementation based on the results of these investigations must be attempted.

BIBLIOGRAPHY

BIBLIOGRAPHY

1. Chase, W. Linwood. "Subject Preferences of Fifth-Grade Children," The Elementary School Journal, 50:204-211, December, 1949.
2. Curry, Robert L. "Subject Preferences of Fifth-Grade Children," Peabody Journal of Education, 41:23-27, July, 1963.
3. Davidson, Robert V. "Subject Preferences of Fifth-Grade Pupils in the State of Washington." Unpublished Master's thesis, Central Washington State College, Ellensburg, Washington, 1965.
4. Davis, Earl E. "Attitude Change: A Review and Bibliography of Selected Research," Reports and Papers in the Social Sciences, No. 19, UNESCO, 1965.
5. Dewey, John. Interest and Effort in Education. Boston: Houghton Mifflin Company, 1913. 102 pp.
6. Gray, Roger. "An Investigation of a Self-determining Curriculum." Unpublished Master's thesis, Central Washington State College, Ellensburg, Washington, 1969.
7. Greenblatt, E. L. "An Analysis of School Subject Preferences of Elementary School Children of the Middle Grades," The Journal of Educational Research, 55:554-555, August, 1962.
8. Hedges, William. "Evaluation of the Affective (Emotional) Development of the Child," Part I of II, Hedges Letter Number Seven: Evaluation of Nongraded Programs in the Elementary and Junior High School, Science Research Associates, Inc., 1968.
9. Inskeep, J. and M. Rowland. "Analysis of School Subject Preferences of Elementary School Children of the Middle Grades: Another Look," Journal of Educational Research, 58:225-228, January, 1965.
10. Jersild, Arthur T. Child Psychology. New York: Prentice-Hall, Inc., 1954. 676 pp.
11. Kelley, Earl C. "The Place of Affective Learning," Educational Leadership, 22:455, April, 1965.
12. Krathwohl, D. R., B. S. Bloom, and B. B. Masia. Taxonomy of Educational Objectives, Handbook II: Affective Domain. New York: David McKay, Inc., 1964. 196 pp.
13. Mager, Robert F. Developing Attitude Toward Learning. Palo Alto, California: Fearon Publishers, 1968. 104 pp.
14. Miller, G. R. "Crucial Problem in Attitude Research," Quarterly Journal of Speech, 53:235-240, October, 1967.

15. Mosher, Howard H. "Subject Preferences of Girls and Boys," The School Review, 60:34-38, January, 1952.
16. Osborne, E. G. Camping and Guidance. New York: Association Press, 1937. 389 pp.
17. Osgood, C. E., G. J. Suci, and P. H. Tannenbaum. The Measurement of Meaning. Urbana, Illinois: University of Illinois Press, 1957. 342 pp.
18. Remmers, H. H. Introduction to Opinion and Attitude Measurement. New York: Harper and Brothers, 1954. 437 pp.
19. Rokeach, Milton. Beliefs, attitudes, and Values: A Theory of Organization and Change. San Francisco: Jossey-Bass, Inc., 1968. 214 pp.
20. Rosenberg, Milton J., and others. Attitude Organization and Change, Vol. 3, Yale Studies in Attitude and Communication. New Haven: 1960. 239 pp.
21. Sharples, D. "Children's Attitudes toward Junior School Activities," British Journal of Educational Psychology, 39:72-77, February, 1969.
22. Sponberg, Ruth Ann. "New Kind of School Day," The Instructor, 78:14-14, December, 1968.

APPENDIX A
MASTER DATA SHEETS

Appendix A₁

Master Data Sheet Concerning the Students' Attitudes toward the Six Curricular Areas (Raw Scores), Positive and Negative Changes in Their Attitudes (Number of), and the Overall Direction of Changes in Attitudes for Each Curricular Area (+ or -)

Attitude Ratings and the Direction of Changes in Attitudes

	S	L	M	A	P	X	Totals
Pre-summer school inventory	170	220	179	123	221	159	1072
Post-summer school inventory	166	189	159	156	196	137	1003
Changes (overall)	+	+	+	-	+	+	+

Number of Positive and Negative Changes in Attitudes

(+) changes	24	32	31	11	29	29	47
(-) changes	17	15	17	30	15	17	22
Total changes	41	47	48	41	44	46	69

S = Science; L = Language Arts; M = Mathematics; A = Art; P = Movement Exploration;
X = Manipulative Activities

Appendix A2

Master Data Sheet Concerning the Students' Curricular Choices of the Six Curricular Areas (Number of Choices), the Percentage of the Total Choices for Each Curricular Area, Positive and Negative Changes in Their Curricular Choices (Number of), and the Overall Direction of Changes in the Students' Curricular Choices

	S		L		M		A		P		X		Totals	
	f	%	f	%	f	%	f	%	f	%	f	%	f	%
1st half choices	236	10.9	522	24.0	354	16.3	348	16.0	199	9.1	516	23.7	2175	100
2nd half choices	221	10.6	458	21.4	333	15.6	280	13.1	274	12.8	570	26.7	2136	100
Total choices	457	10.6	980	22.7	687	16.0	628	14.6	473	10.9	1086	25.2	4311	100
Changes (Overall direc- tion)		-		-		-		-		+		+		

Number of Positive and Negative Changes in Curricular Choices

(+) changes	31	32	25	28	40	37	
(-) changes	32	40	38	44	20	35	
Total changes	63	72	63	72	60	72	

S = Science; L = Language Arts; M = Mathematics; A = Art; P = Movement Exploration;
X = Manipulative Activities; f = Number of Choices

APPENDIX B

SUMMER SCHOOL ATTITUDE INVENTORY

Your name _____

Date _____

Like
very
much

Like

It's
OK

Dislike

Dislike
very
much

1	2	3	4	5
---	---	---	---	---

1	2	3	4	5

 Reading

1	2	3	4	5

 Language Arts

1	2	3	4	5

 Social Studies

1	2	3	4	5

 Arithmetic

1	2	3	4	5

 Science

1	2	3	4	5

 Art

1	2	3	4	5

 Dance & Rhythms

1	2	3	4	5

 Activities